REMARKS

Summary of the Office Action

Claims 1-62 are pending in the application.

Claims 1-2, 8-15, 21-24 and 46-53 have been have been rejected under 35 U.S.C. § 102(b) as being anticipated by Dempster, U.S. Patent No. 5,105,825 ("Dempster '825").

Claim 42 is objected to as incorrectly identifying its antecedent claim.

Claims 3-7, 16-20, 25-45 and 54-62 have been indicated to contain allowable subject matter if rewritten in independent form, including the limitations of any intervening claims.

Summary of Applicants' Reply

Applicants have amended claim 42 in accordance with the Examiner's instructions. Applicants respectfully traverse the rejections of claims 1-2, 8-15, 21-24, and 46-53.

Reply to Rejections Under 35 U.S.C. § 102(b)

First, the undersigned thanks the Examiner for the interview conducted on October 7, 2003, with Messrs. Douglas Oguss and Ray Zado. At that interview, the undersigned reviewed the prior art rejections with the Examiner, and discussed the differences between the features recited in the pending claims and the prior art. The following remarks expand upon the discussion presented during the October 7, 2003 interview.

Based on the discussions during the October 7, 2003 interview, applicants understand that the pending claims were rejected over prior art in which a plethysmographic measurement is conducted by separately measuring pressure fluctuations in two chambers coupled to each other via an oscillating diaphragm (which pressure fluctuations are used to determine the volume of one of

the chambers). In particular, the Examiner pointed to the word "combined" in independent claims 1 as and 12 as potentially including art in which such separate measurements are conducted. Applicants respectfully traverse this rejection.

In light of the language in the claims and discussion in the specification, one of ordinary skill in the art would understand that the claims describe more than just the separate measurement of two chambers coupled via an oscillating diaphragm. Although the claims are not limited to all the details of the specification, the specification and the claims are consistent in that they require a measurement chamber that is coupled to a known calibration volume by an opening, which opening is maintained open or sealed off using an electronically controlled valve during a calibration process. Thus, during one measurement of the calibration process (referred to in claims 1 and 12 as a "baseline measurement"), the valve is in the open state, and the measurement chamber and calibration volume are coupled via the opening, such that the measurement determines the combined volume of both the measurement chamber and the calibration volume. During a second measurement of the calibration process (referred to in claims 1 and 12 as a "comparison volume measurement"), the valve is in the closed state, and the measurement chamber and reference volume are sealed off from each other such that the measurement determines the volume of the measurement chamber alone (thereby resulting in a reduced net volume for the measurement):

> In step 43B, computer 30 determines ***whether the valve is in the proper (open) state.*** If not, computer 30 sends a signal to actuation assembly 42 to open valve 40. ***In step 43C, computer 30 directs measurement components 26 to measure the combined volume of the measurement chamber and calibration volume chamber.*** In step 43D, computer 30 stores the values generated from the measurement in 43C. ***In step 43E, computer 30 sends an electrical signal to valve actuation assembly 42 to close valve 40, ther by reducing the net chamber volume.***

> ***In step 43F, computer 30 directs measurement components 26 to measure the volume of measurement chamber 22.*** In step 43G, computer 30 stores the values generated by the measurement of step 43F. In step 43H, the measured volumes are then compared based on the known volume of calibration volume chamber 36. Based on the above comparison, computer 30 finalizes calibration of measurement system 20, and indicates to the technician that measurement of the test subject can begin.

(emphasis added). These two measurements (one with the opening coupling the measurement chamber and reference volume in an open state, and one with the opening sealed off by the electronically controlled valve) are then used to calibrate the plethysmographic measurement system.

Thus, one of ordinary skill in the art would understand that the measurement chamber and reference volume of the claimed invention are coupled by an opening that is either maintained open or sealed off during a calibration process based on the position of an electronically controlled valve. Further, one of ordinary skill in the art would necessarily view the "combined volume" of independent claims 1 and 12 as the total volume of both the chamber and the reference volume coupled to the chamber by the opening, which volume is measured when the electronically controlled valve is in the open state.

By contrast, Dempster '825 describes a plethysmographic measurement conducted by simultaneously stimulating two sub-chambers of a plethysmographic measurement chamber using a diaphragm (Fig. 1, sub-chambers 2 and 3, diaphragm 18). The two sub-chambers are coupled by the vibrating diaphragm interposed between them, which diaphragm generates simultaneous pressure fluctuations of equal magnitude, but opposite sign, in the two sub-chambers.

More particularly, in the measurement process described in Dempster '825, the subject to be measured is placed within one of the sub-chambers (e.g., sub-chamber 2). The diaphragm

oscillates in a manner that simultaneously stimulates each sub-chamber in a precisely complementary fashion. Pressure transducers in each of the sub-chambers (transducer 15 for sub-chamber 2, transducer 19 for sub-chamber 3) separately measure the pressure fluctuations in the two sub-chambers generated by the oscillating diaphragm. Then, by comparing the pressure fluctuations measured in, and known volume of, sub-chamber 3 to the pressure fluctuations measured in sub-chamber 2 using Boyle's and/or Poisson's Law, the volume of sub-chamber 2 can be determined.

Thus, the two sub-chambers disclosed in Dempster '825 are not coupled by an opening that is maintained open or sealed off by an electronically controlled valve during a calibration process. Indeed, the relationship between sub-chambers 2 and 3 in Dempster '825 does not change during the plethysmographic measurement: the two sub-chambers are always coupled in the same way via the diaphragm. Moreover, at no point is a "combined volume," as that term would be understood by one of ordinary skill in the art upon reading the disclosure of the pending application, measured in the process described in Dempster '825. Rather, the pressure fluctuations in sub-chamber 2 are measured separately from the pressure fluctuations in sub-chamber 3. As a result, the measurement process in Dempster '825 determines two separate volumes, one for sub-chamber 2 and one for sub-chamber 3.

As Dempster '825 also makes clear, simply generating a plethysmographic measurement using the process described above does not calibrate the plethysmographic measurement system. Rather, as disclosed in Dempster '825, and as alluded to by the Examiner during the October 7, 2003 interview, the described measurement chamber is calibrated using a reference volume comprised of a metal cylinder. Specifically, a metal cylinder of a fixed, known volume is manually inserted into the measurement

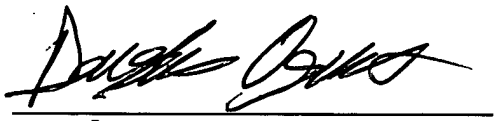
chamber. Dempster '825, col. 5, line 52; col. 7, lines 15-22; col. 8, line 50 - col. 9, line 20. By comparing the measurements derived when sub-chamber 2 is empty, versus when the sub-chamber includes the reference cylinder, the system may be calibrated. This calibration process likewise does not involve the sealing or unsealing of an opening coupling a reference volume to a measurement chamber.

Hence, the measurement process disclosed in Dempster '825 does not meet the elements of pending independent claims 1, 12, 23, and 50. With respect to the dependent claims rejected under Dempster '825, and not specifically addressed hereinabove, Applicants submit that, because Dempster '825 cannot anticipate independent claims 1, 12, 23, and 50 for at least the reasons described hereinabove, Dempster '825 cannot anticipate dependent claims that necessarily include all the limitations of the claims from which they depend. Accordingly, Applicants submit that the rejections are in error and should be withdrawn.

Conclusion

In view of the foregoing, applicant respectfully submits that the present application is in condition for allowance. An early and favorable action is earnestly requested.

Respectfully submitted,



Douglas A. Oguss
Registration No. 48,469
Agent for Applicant

c/o FISH & NEAVE
Customer Number 1473
1251 Avenue of the Americas
New York, N. Y. 10020
(650) 617-4000
(212) 596-9090 (fax)